KPBS

Experts Discuss Challenges to Water Recycling Locally

By Maureen Cavanaugh, Hank Crook
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MAUREEN CAVANAUGH (Host): I'm Maureen Cavanaugh. You're listening to These Days on KPBS. Well right before the break, we discussed the conflict between what scientists and engineers say about recycled waste water, and what the public perception is. The derogatory term 'toilet to tap' leaves out several crucial steps that officials say makes recycled water safe and healthy to drink just like Mother Nature has been doing for years. For the past decade, the issue of water reclamation in San Diego has suffered from bad press and lack of leadership, but it's now getting a new push. The City of San Diego is embarking on a study of a large-scale recycling facility. To find out why the new effort is being made and what we may learn, I'd like to welcome my guests. Marsi Stierer is Deputy Water Department Director with the San Diego Public Utilities Department. And welcome to These Days, Marsi.

MARSI STIERER (Deputy Water Department Director, San Diego Public Utilities Department): Thank you and good morning to you.

CAVANAUGH: Good morning. And Bruce Reznik, Executive Director of San Diego Coastkeeper. Good morning, Bruce.

BRUCE REZNIK (Executive Director, San Diego Coastkeeper): Good morning. Thanks for having me.

CAVANAUGH: A little later in the hour, we'll hear from Mike Marcus. He's General Manager of the Orange County Water District, and he's going to tell us about their water recycling program. I want to remind our listeners that we are inviting you to join the conversation. Will San Diego ever be able to rise above the 'toilet to tap' stigma and accept the use of recycled water? Give us a call with your questions and concerns. The number: 1-888-895-5727. Let me start with you, Marsi, if I may. And can you tell us what kind of water reclamation facilities currently exist in the city of San Diego.

STIERER: Well, the city operates two water reclamation plants, one is the North City plant and that was the location that Tom had mentioned in his earlier story and he toured it earlier this week, and that's going to be the site of our demonstration project. The city's second water reclamation facility is on Dairy Mart Road near the U.S.-Mexico border, and that's called the South Bay Water Reclamation Plant.

CAVANAUGH: And are these reclamation plants for recycling gray water?

STIERER: It's for – Well, it starts off with – it's basically a sewage treatment facility…

CAVANAUGH: Right.

STIERER: …and there is a component of treating the sewage to levels that are acceptable and meet federal regulations. And then in order to make the recycled water at the tertiary level to meet California standards, that water that is treated to the secondary level goes – undergoes an additional level of treatment to tertiary and then it meets all of the standards and can be distributed into our distribution system that's also known as purple pipe.

CAVANAUGH: That's what I was getting to. So this does go into the purple pipes.

STIERER: Yes.

CAVANAUGH: Where's the water sent to? I mean, where does – where do the purple pipes go now?

STIERER: Well, we have a pretty large water recycled distribution system. Our largest is off of North City and that facility is at the intersection of – kind of by where – cattycorner to the University Towne Center shopping center, for your listeners to get the geographic location, off of 805 and Miramar Road. And so that goes all the way down to 52. We sell recycled water to the City of Poway. And then it goes up north into the areas such as the Black Mountain area and golf courses that are geographically in that area, as well as Torrey Pines. So it's a pretty large network. It's several hundred miles of pipe.

CAVANAUGH: Interesting. Now can anyone sort of tap into that purple pipe system? Or do you really – do you need a special permit? I mean, what do you need to do?

STIERER: Well, we actually have a group of people that work with our customers to bring them onboard. There is a regulatory process that we need to work with, with both the County and the State of California. There are special meters. The pipes are all purple pipe. There's inspections that we do to make sure that there's no cross connection between the recycled water pipelines and the drinking water lines that could be fairly adjacent. So it undergoes a lot of scrutiny but in – if – it's much easier to install that sort of distribution system in new construction than retrofit. But we have brought on – A number of customers are retrofitting, including city parks and schools, and we just brought online a very large cemetery in the Sorrento Mesa area.

CAVANAUGH: So this is a growing project.

STIERER: Yes.

CAVANAUGH: What kind of challenges are you facing as it expands?

STIERER: Well, I think the challenges are primarily just associated with the amount of time that it takes. Especially if it's a retrofit project, sometimes from, you know, the inception when we first talk to the potential customer to when they're actually online, it could take several years.

CAVANAUGH: Let's take a call. We have a caller. Bob is in downtown San Diego. Welcome, Bob, welcome to These Days.

BOB (Caller, Downtown San Diego): Yeah, thanks. Listen, you know, I think – I don't know who coined that term 'toilet to tap' but we just need to get beyond that. And I think that if we don't, you know, judging from recently I saw – heard on your program that 60% of our drinking water is used for irrigation outside, then, you know, we're not going to have any water. And so I just – I don't even know why we have to do another study. It seems to me like there's dozens of communities—and that was discussed by Tom Fudge—that are already doing this. I don't know why we have to spend, you know, more money doing another study. I think we need to just go ahead and do it. And then my other question is, it seems to me I've recently read in the newspaper and I've heard

that there are retrofits that people can do in their homes where the drains that, you know, are connected not to your toilet but to your dishwasher, your bathtub, your shower, your water that goes into your washing machine, it's pretty – relatively easy and relatively inexpensive and, I mean, you know, like let's say under $5,000.00 to connect that up and then hook that into your irrigation and water your, you know, your grass and your flowers that way. You know, are there opportunities where, you know, you can have some kind of tax deduction or some kind of incentive for individual households to do this?

CAVANAUGH: You've hit a lot of…

BOB: It would seem like that would really help…

CAVANAUGH: Hey…

BOB: …given that we're in this really, you know, serious water drought emergency.

CAVANAUGH: Bob, you've hit on an awful lot of topics. I want to break them down and ask Marsi. First of all, let's go to what he was saying about people in their homes being able to use their shower water, turn it into gray water and use it on their landscaping. Where are we in terms of people being able to do that?

STIERER: The gray water, that's something that's regulated by the State of California and I think a lot of folks believe that the regulations are very difficult to implement and so I think the State, at this point in time, is under – is basically exploring its options to reduce the – make it basically easier for people to hook up to gray water. I think there's information that's online on the City's website, the San Diego County Department of Environmental Health actually regulates the systems and permits them, and I'm sure that there's information also that's available on the State of California (sic) if you would put that into your search engine.

CAVANAUGH: And Bob also mentioned studies that are going on right now to expand the use of San Diego's recycled water. What can you tell us about – I think there are two studies underway.

STIERER: Well, the one study that is – we refer to as the Demonstration Project and that's the one that the city council voted to approve a special rate increase for last fall, and the rate increase went into effect on January first to fund and we refer to it as the

Demonstration Project. It's – the longer name is the Indirect Potable Reuse and Reservoir Augmentation Demonstration Project. And the purpose of it is basically to provide the technical, environmental, public outreach and regulatory requirements necessary to move forward to a full scale project. Earlier on your show, there was mention of Upper Occoquan in northern Virginia. And also the Orange County project, later on I think you'll bring on Mike Marcus from Orange County Water District. Those projects are somewhat different. And within the state of California, a surface water augmentation project has not yet been permitted. So really the purpose of the – our project is to go through all of the necessary process that we need to in order to work with our regulators that if the city council wants to move forward with the full scale project, we'll have all the answers to be able to do so.

CAVANAUGH: Let me bring in Bruce Reznik. He's Executive Director of San Diego Coastkeeper. And, Bruce, San Diego Coastkeeper is quite responsible for the fact that there is this test project underway in San Diego. Can you tell us about that and how that deal was arranged?

REZNIK: Yeah, well, the – both studies, we've been pretty heavily involved in. The first study, the pilot project, that really arose out of a legal settlement we had back in 2002 with the City over the Point Loma Sewage

facility. We had brought litigation against the City. Actually, the City had sued as well against the Environmental Protection Agency over the permit for the Point Loma discharge, and we send about 180 million gallons a day of advanced primary treated sewage to the ocean. We had advocated that that wasn't a strong enough permit, that we needed to up to secondary treatment. But one of the things we looked at when we brought that litigation and we reached a settlement with the City, was that instead of figuring out how we can treat our sewage better going into the ocean, to actually shoot less sewage into the ocean instead and reclaim that water, which really kind of kills two birds with one stone. You know, you get less discharge to the ocean so you're enhancing ocean protection, ocean health, but you're also augmenting our most precious resource, which is drinking water, in San Diego. So it was part of that settlement that the 2005 Water Reuse Study, which looked at different options, came about and then we worked with the City to move forward to actually implement the Water Reuse Study and the recommendation there is to focus on the North City Reclamation Facility, which right now, again, is a facility we spent hundreds of millions of dollars to build and it's being underutilized because there aren't enough customers. And the best way to fully utilize that is to actually discharge up to 16,000 million gallons a day into San Vicente Reservoir.

CAVANAUGH: Right.

REZNIK: The second study, which is the more regional assessment, is the more regional assessment, that also was a similar situation which is the same discharge permit for the Point Loma facility was just up for renewal last year and, you know, we sat down with the City actually much earlier and said, look, we'd rather not be suing over this permit again. We need to be looking beyond secondary treatment and really look to fulfill the Clean Water Act, which is to try to actually eliminate discharges to the ocean. And even if we reclaim everything we can at North City, that's only 16 million gallons a day. We still have 170 some-odd million gallons of sewage going into the ocean. We could reclaim that and actually make San Diego a much more sustainable and water secure region.

CAVANAUGH: So, Bruce, let me just clarify. Both of these projects came about, at least in part, as a deal that you made with the City to drop a lawsuit that Coastkeeper and Surfrider Foundation were going to file to challenge the waiver that the EPA was going to give the City of San Diego to postpone that secondary sewage treatment of the waste that we dump into the Pacific Ocean. Is that correct?

REZNIK: That's exactly it. And, you know, in looking at it with Point Loma, we said, look, we could bring a settlement and maybe we would prevail, maybe we won so we'd reach a settlement, maybe we could force the city to spend a billion dollars to upgrade their facility to secondary treatment but we're still just improving the quality of sewage that's going out into the ocean and we still, even at secondary treatment, wouldn't be addressing things like pharmaceutical and other emerging contaminants, cosmetics. And we wouldn't be doing anything to address the dire, dire water crisis that we face in San Diego. So we decided it was time to have sort of a massive paradigm shift and not focus on improving secondary treatment at Point Loma – or sewage treatment at Point Loma but, instead, figuring out ways that we can build reclamation facilities, potentially throughout the city and throughout the region so that we hopefully get to a point—and this is, you know, our goal at Coastkeeper and I think I speak for Surfrider, where we don't see any sewage discharged into the ocean. It's too precious a resource. It comes to us from the Colorado River, the San Joaquin Delta, it's pumped hundreds of miles with huge amounts of energy and environmental impact, and then we flush it once and then we're impacting ocean health. And we need to change the entire way that we think about and value water in San Diego and start reclaiming that precious resource.

CAVANAUGH: Bruce, right before we take a break, I want to ask you what you see as the biggest local challenges to creating the kind of water recycling facility you think we need in San Diego.

REZNIK: Well, you know, I have a little different take on it because I don't think there's as much public outrage as folks think. You know, back when 'toilet to tap' was first coined, there was a fear of a backlash and a lot of the politicians latched on to it and I think there was a little bit of backlash but right now we face much more of a dire crisis and the public is actually – they haven't turned out en masse and they haven't protested. And most of them, when you explain it, understand it. Most of the polling has shown that if there's any bit of education, the public kind of rallies behind it. So I actually think the public is out in front. I actually think it relates more to the political leadership, getting the political leadership to realize this is a necessity for the region and instead of taking a backseat, to stand, I think, where the public is and show some leadership on this issue.

CAVANAUGH: That's Bruce Reznik. He is Executive Director of the San Diego Coastkeepers (sic). Marsi Stierer is also my guest. She's with the San Diego Public Utilities Department, Public Water Department Director, Deputy Water Department Director. And we will be talking to Mike Marcus, General Manager of the Orange County Water District. And we are going to continue talking about water recycling in San Diego as These Days continues in just a moment.

CAVANAUGH: Welcome back. I'm Maureen Cavanaugh. You're listening to These Days on KPBS. We're talking about a new try at water recycling in San Diego. My guests are Marsi Stierer. She's Deputy Water Department Director in San Diego, and Bruce Reznik, Executive Director of San Diego Coastkeeper. And right now on the line, joining us is Mike Marcus. He's General Manager of the Orange County Water District. He's going to be talking about their water recycling program. Hi, Mike, thank you for joining us.

MIKE MARCUS (General Manager, Orange County Water District): Well, thank you, Maureen. It's great to be with you this morning.

CAVANAUGH: I just want to remind everyone we are taking your calls, your questions and concerns about water recycling. The number is 1-888-895-5727. Well, Mike, you know, a lot of people would say Orange County's way ahead of us on water recycling. What do you have to say about that?

MARCUS: Well, we've been doing this a long time. We actually started in the mid-seventies and – with our old Water Factory 21, which produced about five million gallons of advanced purified water. And then, you're right, just recently, about a year and a half ago, we started operation of our groundwater replenishment system which is a 70 million gallon per day advanced water purification system.

CAVANAUGH: And I'm wondering, you have a certain situation up there that we don't have, and it has to do with groundwater and aquifers. Tell us how you use you that to – in your recycling program.

MARCUS: Sure. About half the water that we produce out of our plant, about 35 million gallons, we actually inject directly into the ground, into a sea water barrier along the coast to keep the sea water from coming inland and contaminating the groundwater basin. The other half, we pump up to our recharge facilities through a 14-mile pipeline, and then we let that water naturally percolate into the groundwater basin. So it actually takes about six months to a year before it then is pumped out of the ground and directly into our city's water distribution systems.

CAVANAUGH: And why do you do that?

MARCUS: Well, that's – it's an indirect potable reuse project so – and I think you've had the discussion a little bit earlier, and it's because of the nature of our system up here. We have this groundwater basin, which is a tremendous natural resource and we're looking for different water supplies that we can utilize that will help fill

that groundwater basin up because the more water is in our groundwater basin, the more we can pump out of it and it actually lessens our dependency on imported water.

CAVANAUGH: No, I understand the essence of the water recycling but pumping it back into the groundwater, is that basically for psychological purposes? To make people feel better about the recycled water?

MARCUS: Well, no, half the water we inject or pump back into the ground and that's for our sea water barrier.

CAVANAUGH: Okay.

MARCUS: So we have to that to create a groundwater mound, in essence, to keep sea water from coming inland. The other half, we let naturally percolate into the ground.

CAVANAUGH: Okay. All right. I'm really not getting to the essence of this. I'm wondering, we talked earlier about the psychological aspects of using recycled water, the old 'toilet to tap' thing. Is there any disdain or stigma about using recycled water in Orange County?

MARCUS: We've had absolutely no opposition to our project, Maureen. And we kind of attribute that to a very lengthy outreach program. We actually started looking at this project in the mid-nineties, and when we began the project we actually started our outreach so our outreach lasted over about a ten-year period. We invested about four million dollars in it, and that really was one of the key success stories to our project.

CAVANAUGH: I want to take a question from a caller now. Laura is in Scripps Ranch, and good morning, Laura, welcome to These Days.

LAURA (Caller, Scripps Ranch): Oh, good morning. Thank you for taking my call. I'm hoping that your panel of experts can alleviate my concern about this. I can appreciate the technology that we have. The technology in a perfect condition can make, you know, all this reclaimed water, including toilet water, safe to drink. I guess I'm more concerned about human error and what the systems the technology has in place to avoid human error, the kind of thing where, you know, gee, I thought you changed the filters. No, I thought you did. And, you know, all this contaminated water goes through. And then the second part of my question was, you know, what are the chances down the road, a few years down the road, that we will discover that the process and the filters and everything don't take out some of these, you know, microbial pharmaceutical, viral or bacterial contaminants, that, gee, we didn't realize, you know, they were so small that they were getting through. So those would be my two concerns I'm hoping your panel can address.

CAVANAUGH: Well, thank you. Let me go to Marsi for that because that's the kind of thing that this test project is supposed to find out.

STIERER: That's correct. And earlier Bruce had mentioned that we had undertaken the water reuse study in 2005, and at that point in time we ran a small scale pilot plant and did actually take samples along the way and sent it out – sent them out, and that's actually what we'll be doing with our Demonstration Project but on a much larger scale. I think that in terms of your overall concern about human error, I think that there are processes in place in order to assure that that's not going to happen. There's – the technology is pretty well defined and is very sophisticated. There's a lot of monitoring that takes place. But I think the other aspect of it is, and Mike and Maureen touched on this earlier, I think that's one of the things regulatory-wise that – why our regulators like the water both for Orange County to go into the groundwater for an additional level of treatment as well as for the water in the City's proposed project to go into the reservoir.

CAVANAUGH: Yes. Right. I want to talk more about that. I do want to take this phone call, though. Belinda's been on the line for quite some time. Belinda is in Chula Vista. And welcome to These Days, Belinda.

BELINDA (Caller, Chula Vista): Thanks, Maureen. Thanks for having me. I'm calling in on behalf of the Surfrider Foundation.

CAVANAUGH: Okay, terrific. Now what – And what would you like to add?

BELINDA: Well, I – you know, I can appreciate that last caller, Laura from Scripps Ranch, talking about how she's concerned about this 'toilet to tap' water being pure, and I wanted to address that. You know, the studies show that it's so pure that minerals have to be added back into it and it's much, much cleaner, on average, than bottled water. And I think if the listeners really think about it, we are already drinking that 'toilet to tap' water. You know, all the water we bring in from the Colorado River has actually gone through Vegas. The people in Vegas have used it, and then discharged their own water back into the river and then we drink it. So, you know, we are already drinking it. So actually implementing a recycling or reclamation process makes sense because it will actually be cleaner water. And we really like this idea and we really want to thank all the members of the city council for moving forward on that because – that study because we know that this water is a much wetter – much better way to go than actual like desalination per – for example.

CAVANAUGH: Well, thank you for the call, Belinda. And, Bruce Reznik, who – with San Diego Coastkeeper, surfers have – this is an issue near and dear to surfers' hearts and people who use the ocean a lot. Tell us why.

REZNIK: Well, like I said, I think doing, you know, water reclamation is really a win-win by augmenting our local water supplies but then also decreasing our sewage discharge to the ocean, and, regionally, we discharge over 200 million gallons and from Point Loma it's around 180. And there are other alternatives as Belinda pointed out, like desalination, which are extremely costly, energy intensive, and damaging to our marine environment so, you know, we believe there needs to be prioritization of how we enhance our local supply, starting with conservation and efficiency and then, you know, water reclamation and rainwater harvesting and then go into more damaging alternatives. But two other points I want to make quickly, just following up on the call or – and Belinda's statement, is in the Colorado River, 400 million gallons of sewage and a billion gallons of industrial and agricultural runoff go into the Colorado before we drink it. As I like to say, you know, what happens in Vegas, doesn't stay in Vegas, it ends up in our water. So if you don't trust, you know, water reclamation, you really shouldn't be drinking our water now because the City's managing to treat that. And in terms of the emerging contaminants—and I'm not a technical expert but I've talked to some of the top technical experts, and Marsi's actually put together an independent advisory panel of many, you know, people from Salk Institute, microbiologists, San Diego State, people with a lot of technical expertise—we never know what we don't know. And you always worry about, you know, what is the latest emerging contaminant but what's being proposed for the treatment train for this water reclamation, it actually far exceeds our current treatment and is actually much better at getting out those pharmaceuticals and emerging contaminants than what we're currently doing. So I would argue that, you know, while I don't know what I don't know, and there's always a risk of emerging contaminants, things that we're not looking for currently, this water reclamation will actually be cleaner and safer than what we're currently doing and that's why we think it's – it really is sort of an across the board, you know, win and makes sense for, you know, not only the environment but our pocketbooks because it's affordable, and for public health and security of the region.

CAVANAUGH: Marsi Stierer, I want to take you up on something that you were saying a little bit before. We talked to Mike about the fact that they allow their recycled water, some of it, back into the groundwater, some of it to trickle down naturally. We are thinking, if this demonstration project, the pilot project, if that – if that's successful, of introducing the recycled, potentially potable water, drinkable water, into San Vicente, is that correct?

STIERER: They would – the advanced treated water is basically ultra-pure, as Bruce had indicated and the other caller, yes.

CAVANAUGH: Umm-hmm. And so it would go into San Vicente reservoir?

STIERER: It would be – it would travel via a 23-mile pipeline into San Vicente Reservoir, which is in Lakeside, and the water that's presently in San Vicente consists of local runoff, meaning when it rains, as well as imported water that comes from Northern California and the Colorado River.

CAVANAUGH: That's interesting. Is this the first time that recycled water would be put into an existing reservoir in California?

STIERER: In California, yes.

CAVANAUGH: And so what do we have to prove to the California regulators to allow that to happen?

STIERER: Well, that's basically the point of the Demonstration Project itself. Bruce had mentioned or we've discussed several elements on this program this morning. Bruce had mentioned we have an independent advisory panel. The Department of Public Health, which is our regulator, they really like the idea that we would convene a panel of ten experts with – from various fields to kind of assist us both in defining the treatment parameters and regulatory parameters as well as there's two experts that will help us on the reservoir study and how the advanced treated water mixes in with imported and runoff water in San Vicente. There's a public outreach component and so it's basically the full spectrum.

CAVANAUGH: And, Mike, could you tell me once again how much recycled water do you use up there in Orange County?

MARCUS: Our plant is producing 70 million gallons per day, which is enough water for about a half a million people.

CAVANAUGH: And what do we think that we might be able to do here in San Diego? Do we have any projections on how much recycled water we could provide into that reservoir?

STIERER: Well, the results of a previously mentioned study that concluded in 2005, it's about 16 million gallons a day. However, one of the studies that Bruce also mentioned is going to be underway probably in a month or so and that will evaluate the capacity on a regional basis, how much waste water there is, and will actually be looking to see if there's additional flows that we can get into the North City area so that if the project is built, we'll know the maximum capacity of all of the facilities. So it could, indeed, be a larger number than 16.

CAVANAUGH: Let's take another call. Alan in San Diego is on the line. Good morning, Alan, and welcome to These Days.

ALAN (Caller, San Diego): Good morning, Maureen. Thanks for taking my call. Really quick, I just wanted to echo what – what's already been discussed slightly, is think the key here is outreach to the community as the political will is basically looking towards the community and saying, well, you know, this, quote, unquote, 'toilet to tap,' we're not sure if we want to touch it again. But as Bruce was talking before, people understand that we've got a serious water issue here in San Diego and this is definitely one of the best options going forward. The second thing I wanted to talk about and ask some of the experts on your panel there that hasn't really been discussed is the extreme waste of energy moving water around the state of California and just to get to us here in San Diego. I've heard a statistic that the movement of water to get to wherever it's – we drink it is one of the biggest wastes of energy that we have. And so if we go forward with reclaiming our own water here locally, it would not only save water but it would save a boatload of energy, which we know is just as important. Thank you.

CAVANAUGH: Thank you for that, Alan. And, Mike, can you tell us something about the movement of water and how much energy it uses?

MARCUS: Yeah, I can chime in on that. Your caller's absolutely correct. Actually, about 20% of the energy that's used in the entire state of California is used moving water around the state. Our project actually produces our advanced purified water at half the energy that it takes to move water from Northern California down into Southern California. So we're at about half the energy. We're also at about half the energy that it would take to desalinate water so…

CAVANAUGH: Ah…

MARCUS: …we always say you should first conserve, second recycle, and desalination should be probably our last option.

CAVANAUGH: I'm wondering, Mike, considering all the water that you do reclaim and recycle in Orange County, we have mandatory water restrictions in San Diego County. Do you have that as well?

MARCUS: Well, there are some cities in Southern California that are doing that, or in our area. The City of Long Beach is doing that. A lot of cities, I think, are looking at that currently but – and in, I would guess, the initial stages of enacting those types of restrictions.

CAVANAUGH: I see. But so far, no.

MARCUS: Just one or two. Just a couple.

CAVANAUGH: Okay. Marsi, where are we in these various test projects? Let me talk about the one that's underway now. When will we know whether or not we're doing the right thing and that it's working?

STIERER: Well, we're in the early stages. We basically just got underway in January of this year and so far we have had a meeting of our independent advisory panel, expect a report back from them in next month, in July, and based upon what the results are in that report, we'll move forward to do the procurement associated with the equipment for the Demonstration Project. What we asked the experts to do was to basically help us define the treatment parameters so that is the type of equipment that would be installed in North City as well as the regulatory framework, working with us and the experts as well as the Department of Public Health. Just because there are no present regulatory – there's not a regulatory framework that exists presently for surface water augmentation using advanced treated recycled water. There are groundwater rules but it's not the same thing. So once we get that report, we'll have a better idea in terms of the overall schedule and the implementation.

CAVANAUGH: And I'm wondering, for this Demonstration Project, where will you actually be getting the waste water? How will it come into that project?

STIERER: Well, the Demonstration Project will actually be physically located at the North City Water Reclamation Plant. There is an area that's been designated for the installation of the equipment. And what we'll be doing is we'll be taking the recycled water that typically goes into the distribution system, in the purple pipe system, as it's also known.

CAVANAUGH: Right.

STIERER: We'll be taking a million gallons a day of that and running it through this advanced treatment process, which is a very – it's the same treatment train that they have in Orange County, in the Orange County Water District. And that's ultra-filtration, reverse osmosis, then there's UV and peroxide. And we'll be testing that water along the way in – with various types of labs and the protocols associated with that and then that water, once it's advanced treatment, then we'll blend that back into the distribution system for recycled water. So for the period of time that it's operational, our customers will be getting very high quality, low salinity recycled water.

CAVANAUGH: Interesting. Really quickly because we're running out of time, Marsi, do you have a timeframe on this? When is the test project going to be completed?

STIERER: Well, once it begins operations, and we hope to award a contract sometime next year, and it will be operational for about a year, so I'd say 2011.

CAVANAUGH: Okay. All right. 2011. I want to thank all of my guests and all my callers, thank you so much for calling and offering your wisdom and your questions and comments. Thank you to Marsi Stierer of the San Diego Public Utilities Department, Bruce Reznik, Executive Director of San Diego Coastkeeper, and Mike Marcus, General Manager of the Orange County Water District. You can see all the reports in the KPBS series "H2NO: San Diego Going Dry" at KPBS.org.